

COMMONWEALTH OF VIRGINIA
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION

9 VAC 5 CHAPTER 40.
EXISTING STATIONARY SOURCES.

PART II.
Emission Standards.

ARTICLE 5.
Emission Standards for Synthesized Pharmaceutical
Products Manufacturing Operations (Rule 4-5).

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9 VAC 5-40-430. Applicability and designation of affected facility.

A. The affected facility to which the provisions of this article apply is each process unit or operation.

B. The provisions of this article apply only to sources of volatile organic compounds in volatile organic compound emissions control areas designated in 9 VAC 5-20-206.

9 VAC 5-40-440. Definitions.

A. For the purpose of these regulations and subsequent amendments or any orders issued by the board, the words or terms shall have the meaning given them in subsection C of this section.

B. As used in this article, all terms not defined here shall have the meaning

given them in 9 VAC 5 Chapter 10 (9 VAC 5-10-10 et seq.), unless otherwise required by context.

C. Terms defined.

"Condenser" means a device which removes condensable vapors by a reduction in the temperature of the captured gases.

"Production equipment exhaust system" means a device for collecting and directing out of the work area volatile organic compound fugitive emissions from reactor openings, centrifuge openings and other vessel openings for the purpose of protecting workers from excessive volatile organic compound exposure.

"Reactor" means a vessel designed to carry out chemical reactions under controlled conditions.

"Synthesized pharmaceutical products manufacturing" means manufacture of pharmaceutical products by chemical synthesis.

9 VAC 5-40-450. Standard for volatile organic compounds.

A. Reactors, distillation operations, crystallizers, centrifuges and vacuum dryers.

1. No owner or other person shall use or permit the use of any reactor, distillation operation, crystallizer, centrifuge or vacuum dryer process unit unless such unit is equipped with a vapor control system that will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection A 1 of this section by use of methods in 9 VAC 5-40-460 A and E will be acceptable to the board.

B. Air dryers and production equipment exhaust systems.

1. No owner or other person shall use or permit the use of any air dryer or production equipment exhaust system process unit unless such unit is equipped with a vapor control system that will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection B 1 of this section by use of methods in 9 VAC 5-40-460 B and E will be acceptable to the board.

C. Filling of storage tanks.

1. No owner or other person shall use or permit the use of any stationary storage tank of more than 2,000 gallons capacity for storage of any volatile

organic compound unless such tank is equipped with a vapor control system that will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions during the filling of such tank.

2. Achievement of the emission standard in subsection C 1 of this section by use of the methods in 9 VAC 5-40-460 C and E will be acceptable to the board.

3. The provisions of subsection C of this section shall not be applicable to facilities using volatile organic compounds with a vapor pressure less than 4.1 pounds per square inch absolute at 68°F.

D. Volatile organic compound storage.

1. No owner or other person shall use or permit the use of any tank for storage of volatile organic compounds, unless such tank is equipped with a vapor control system which will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection D 1 of this section by use of control methods in 9 VAC 5-40-460 D and E will be acceptable to the board.

3. The provisions of subsection D of this section shall not be applicable to facilities using volatile organic compounds with a vapor pressure less than 1.5 pounds per square inch absolute at 68°F.

9 VAC 5-40-460. Control technology guidelines.

A. Reactors, distillation operations, crystallizers, centrifuges and vacuum dryers.

The control system should consist of one of the following:

1. Surface condensation system with an outlet temperature not greater than:

a. -13°F when condensing volatile organic compounds of vapor pressure greater than 5.8 psi;

b. 5°F when condensing volatile organic compounds of vapor pressure greater than 2.9 psi;

c. 32°F when condensing volatile organic compounds of vapor pressure greater than 1.5 psi;

d. 50°F when condensing volatile organic compounds of vapor pressure greater than 1.0 psi; or

e. 77°F when condensing volatile organic compounds of vapor pressure greater than 0.5 psi.

2. Any system of equal or greater control efficiency when compared to the standard in 9 VAC 5-40-450 A 1, provided such system is approved by the board.

B. Air dryers and production equipment exhaust systems.

The control system should consist of one of the following:

1. Condensation system.
2. Wet scrubbing system.
3. Carbon adsorption system.
4. Incineration.

5. Any system of equal or greater control efficiency when compared to the standard in 9 VAC 5-40-450 B 1, provided such system is approved by the board.

C. Filling of storage tanks.

The tank should be a pressure tank maintaining working pressure sufficient at all times to prevent vapor loss to the atmosphere, or be designed and equipped with one of the following vapor control systems:

1. A submerged fill pipe.
2. A vapor control system with the vapor recovery portion consisting of one of the following:
 - a. A vapor tight return line from the storage container to the tank truck which shall be connected before liquids are transferred into the container.
 - b. Any adsorption system or condensation system.
3. A vapor control system with the vapor balance portion meeting the following criteria:
 - a. There should be no leaks in the tank trucks' pressure vacuum relief valves and hatch covers, nor truck tanks, storage tanks and associated vapor return lines during loading or unloading operations.

b. The pressure relief valves on storage containers and tank trucks should be set to release at no less than 0.7 psi or the highest possible pressure (in accordance with the following National Fire Prevention Association Standards: Standard for Tank Vehicles for Flammable and Combustible Liquids; Flammable and Combustible Liquids Code; Automotive and Marine Service Station Code (see 9 VAC 5-20-21)).

c. Pressure in the vapor collection lines should not exceed tank truck pressure relief valve settings.

d. All loading and vapor lines should be equipped with fittings which make vapor tight connections and which close when disconnected.

4. Any system of equal or greater control efficiency when compared to the standard in 9 VAC 5-40-450 C 1, provided such system is approved by the board.

D. Volatile organic compound storage.

1. The tank should be a pressure tank maintaining working pressure sufficient at all times to prevent vapor loss to the atmosphere, or be designed and equipped with one of the following vapor control systems:

a. Use of pressure/vacuum conservation vent set at + or – .030 psi.

b. Vent condensation system.

c. Carbon adsorption system.

d. An internal floating roof resting on the surface of the liquid contents and equipped with a closure seal, or seals, to close the space between the roof edge and tank shell. All tank gauging and sampling devices should be vapor tight except when gauging or sampling is taking place.

e. Any system of equal or greater control efficiency when compared to the standard in 9 VAC 5-40-450 D 1, provided such system is approved by the board.

2. There should be no visible holes, tears or other openings in the seal or any seal fabric.

3. All openings, except stub drains, should be equipped with a cover, seal or lid. The cover, seal or lid should be in a closed position at all times except when the device is in actual use. Automatic bleeder vents should be closed at all times except when the roof is floated off or landed on the roof leg supports. Rim vents, if provided, should be set to open when the roof is being floated off the roof leg supports or at the

manufacturer's recommended setting.

4. The exterior aboveground surfaces (exposed to sunlight) should be painted white, light pastels or light metallic and such exterior paint should be periodically maintained in good condition. Repainting may be performed during normal maintenance periods.

E. General.

1. All centrifuges containing volatile organic compounds, rotary vacuum filters processing liquids containing volatile organic compounds and any other filters having an exposed liquid surface where the liquid contains volatile organic compounds should be enclosed. This applies to liquids exerting a total volatile organic compound vapor pressure of 0.5 psi or more at 68°F.

2. All in-process tanks should have covers. Covers should be closed when possible.

3. For liquids containing volatile organic compounds, all leaks in which liquids can be observed to be running or dripping from vessels and equipment (for example: pumps, valves, flanges) should be repaired as soon as is practical.

9 VAC 5-40-470. Standard for visible emissions.

The provisions of Article 1 (9 VAC 5-40-60 et seq.) of this chapter (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

9 VAC 5-40-480. Standard for fugitive dust/emissions.

The provisions of Article 1 (9 VAC 5-40-60 et seq.) of this chapter (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

9 VAC 5-40-490. Standard for odor.

The provisions of Article 2 (9 VAC 5-40-130 et seq.) of this chapter (Emission Standards for Odor, Rule 4-2) apply.

9 VAC 5-40-500. Standard for toxic pollutants.

The provisions of Article 3 (9 VAC 5-40-160 et seq.) of this chapter (Emission Standards for Toxic Pollutants, Rule 4-3) apply.

9 VAC 5-40-510. Compliance.

The provisions of 9 VAC 5-40-20 (Compliance) apply.

9 VAC 5-40-520. Test methods and procedures.

The provisions of 9 VAC 5-40-30 (Emission Testing) apply.

9 VAC 5-40-530. Monitoring.

The provisions of 9 VAC 5-40-40 (Monitoring) apply.

9 VAC 5-40-540. Notification, records and reporting.

The provisions of 9 VAC 5-40-50 (Notification, Records and Reporting) apply.

9 VAC 5-40-550. Registration.

The provisions of 9 VAC 5-20-160 (Registration) apply.

9 VAC 5-40-560. Facility and control equipment maintenance or malfunction.

The provisions of 9 VAC 5-20-180 (Facility and Control Equipment Maintenance or Malfunction) apply.

9 VAC 5-40-570. Permits.

A permit may be required prior to beginning any of the activities specified below and the provisions of 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) and 9 VAC 5 Chapter 80 (9 VAC 5-80-10 et seq.) may apply. Owners contemplating such action should contact the appropriate regional office for guidance.

1. Construction of a facility.
2. Reconstruction (replacement of more than half) of a facility.
3. Modification (any physical change to equipment) of a facility.
4. Relocation of a facility.
5. Reactivation (restart-up) of a facility.

HISTORICAL NOTES:

Derived from: Rule 4-5 of Part IV of VR 120-01 (§ 120-04-0501 through § 120-04-0515)

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